

Attorney Docket No.: P-408 (TI-0013)  
Inventors: Taylor et al.  
Serial No.: 09/802,466  
Filing Date: March 9, 2001  
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This following listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of Claims:**

Claim 1 (currently amended): A method for stabilizing an RNA molecule against degradation comprising:

a) applying a solution to a separation medium having a non-polar separation surface in the presence of a counterion agent, wherein the solution comprises the RNA molecule and an agent capable of catalyzing the degradation of RNA;

b) eluting the RNA molecule from the separation medium by passing through the separation medium a mobile phase containing a concentration of organic solvent sufficient to elute the RNA molecule from the separation medium, wherein the flow of the organic solvent present in the mobile phase is controlled by a mobile phase flow control means which is responsive to computer control, and where the elution is conducted under conditions that result in a ~~substantial~~ separation of the RNA molecule from the agent capable of catalyzing the degradation of RNA using Matched Ion Polynucleotide Chromatography; and

c) collecting an eluant fraction containing the RNA molecule that is ~~substantially~~ free of the agent capable of catalyzing the degradation of RNA.

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Claim 2 (original): The method of claim 1 wherein the agent capable of catalyzing the degradation of RNA is an enzyme.

Claim 3 (canceled).

Claim 4 (original): The method of claim 1 wherein a plurality of RNA molecules is stabilized.

Claim 5 (previously presented): The claim 1 wherein the RNA molecule is separated from the agent capable of catalyzing RNA degradation by Matched Ion Polynucleotide Chromatography.

Claim 6 (original): The method of claim 1 wherein the RNA molecule is separated from the agent capable of catalyzing RNA degradation in a batch process.

Claim 7 (currently amended): A method for stabilizing an RNA molecule against degradation comprising:

a) applying a solution to a separation medium having a non-polar separation surface in the presence of a counterion agent, wherein the solution comprises the RNA molecule and an agent capable of catalyzing the degradation of RNA;

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b) eluting the RNA molecule from the separation medium by passing through the separation medium a mobile phase containing a concentration of organic solvent sufficient to elute the RNA molecule from the separation medium, where the elution is conducted under conditions that result in a ~~substantial~~ separation of the RNA molecule from the agent capable of catalyzing the degradation of RNA; and

c) collecting an eluant fraction containing the RNA molecule that is ~~substantially~~ free of the agent capable of catalyzing the degradation of RNA wherein the RNA molecule is separated from the agent capable of catalyzing RNA degradation under conditions wherein the secondary structure of the RNA molecule is ~~substantially~~ denatured.

Claim 8 (original): The method of claim 7 wherein the RNA molecule is separated from the agent capable of catalyzing RNA degradation at a temperature of about 50°C or greater.

Claim 9 (original): The method of claim 8 wherein the RNA molecule is separated from the agent capable of catalyzing RNA degradation at a temperature of about 70°C or greater.

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Claim 10 (currently amended): The method of claim 7 wherein the mRNA molecule is ~~substantially~~ denatured by means of a chemical reagent.

Claim 11 (currently amended): The method of claim 1 wherein the separation is conducted under conditions that are ~~substantially~~ free of multivalent cations capable of interfering with polynucleotide separations.

Claims 12-20 (canceled).

Claim 21 (currently amended): The method of ~~claim 20~~ claim 1 wherein the mobile phase includes acetonitrile.

Claims 22-25 (canceled).

Claim 26 (currently amended): The method of claim 1 wherein the RNA molecule is separated from the agent capable of catalyzing RNA degradation by Matched Ion Polynucleotide Chromatography, wherein mRNA denaturation is achieved by conducting the separation at a temperature sufficient to ~~substantially~~ denature the mRNA molecule, wherein the separation medium comprises polymer beads having an average diameter of 0.5

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to 100 microns, and wherein the mobile phase comprises acetonitrile and triethylammonium acetate.

Claim 27 (currently amended): The method of claim 26 wherein the separation is conducted under conditions that are ~~substantially~~ free of multivalent cations capable of interfering with polynucleotide separations.

Claim 28 (currently amended): A method for stabilizing an RNA molecule against degradation comprising:

a) applying a solution to a separation medium having a non-polar separation surface in the presence of a counterion agent, wherein the solution comprises the RNA molecule and an agent capable of catalyzing the degradation of RNA;

b) eluting the RNA molecule from the separation medium by passing through the separation medium a mobile phase containing a concentration of organic solvent sufficient to elute the RNA molecule from the separation medium, where the elution is conducted under conditions that result in a ~~substantial~~ separation of the RNA molecule from the agent capable of catalyzing the degradation of RNA; and

c) collecting an eluant fraction containing the RNA molecule that is ~~substantially~~ free of the agent capable of catalyzing the degradation of RNA wherein the RNA molecule is separated from the

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agent capable of catalyzing RNA degradation by Matched Ion Polynucleotide Chromatography, wherein mRNA denaturation is achieved by conducting the separation at a temperature sufficient to ~~substantially~~ denature the mRNA molecule, wherein the separation medium comprises polymer beads having an average diameter of 0.5 to 100 microns, wherein further the mobile phase comprises acetonitrile and triethylammonium acetate, wherein the separation is conducted under conditions that are ~~substantially~~ free of multivalent cations capable of interfering with polynucleotide separations and wherein the separation is conducted at a temperature of about 70°C or greater.

Claims 29-32 (canceled).

Claim 33 (original): A method for stabilizing an RNA molecule against degradation comprising:

a) applying the RNA molecule to a separation medium having a non-polar separation surface in the presence of a counterion agent;

b) eluting the RNA molecule from the separation medium by passing through the separation medium a mobile phase containing a concentration of organic solvent sufficient to elute the RNA molecule from the separation medium; and

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c) collecting an eluant fraction containing the RNA molecule, wherein the RNA molecule is stabilized against degradation.